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Understanding the Candelero: A Synthesis of Research on the Candeleros of the Naco and Lower Cacaulapa Valleys

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What is a candelero? Other than those cited in this paper, few know the answer to this question. Candeleros are a prehistoric artifact type found in Mesoamerica. They are ceramic artifacts with one or more chambers that descend from their upper surfaces. The sides of their chambers are often pierced by what are termed vents. While their form would seem well-suited to holding candles, hence their name, this was not their function.

There are at least three distinct traditions of candeleros that originate in different regions and time periods and have particular styles associated with them. These three traditions are associated with Teotihuacan, Copan, and the Naco and lower Cacaulapa valleys of northwestern Honduras, respectively. The majority of candeleros have been found in these three areas and there is currently no evidence that these traditions influenced each other. While there is a general form to all candeleros that is similar across these traditions, their particular regional forms and decorative modes are distinct. The similarity of their general form suggests that they may have been manufactured and have functioned similarly, but their regional uses were most certainly different. Of these three candelero traditions, the Teotihuacan tradition has been studied most extensively, while the Copan tradition has been studied the least. Similar numbers of candeleros, c. 1500 examples, have been found at Teotihuacan and in the Naco and lower Cacaulapa valleys, while c. 800 examples have been found at Copan (Griffith-Rosenberger, Neviska, and Katzeman 2015). Until recently, the Naco tradition was largely unstudied and was certainly understudied in comparison to the Teotihuacan tradition. This paper examines in depth the candelero tradition centered on the Naco Valley in northwestern Honduras and also found in the lower Cacaulapa Valley. It seeks to report what is currently known about these candeleros in light of recent research on these little-known artifacts. In doing so, the report surveys the literature and research that has been done on candeleros, the candelero features common to the Naco and lower

Cacaulapa valleys, and the possible manufacturing process, functions, uses, and meanings of candeleros in the Naco and lower Cacaulapa valleys based on the most recent research.

Candelero Traditions in Mesoamerica

The most extensive publication on candeleros is a monograph by Charles C. Kolb entitled "Classic Teotihuacan Candeleros: A Preliminary Analysis" (1988). In this work, Kolb reviews the literature on Teotihuacan candeleros and presents original research on collections of candeleros from and thought to be from Teotihuacan and the surrounding area, while briefly mentioning candeleros from elsewhere (1988). Kolb dates Teotihuacan candeleros from c. 250-750 CE (1988, 479). Teotihuacan candeleros are generally thick-walled with either one or two round chambers, although multi-chambered examples ranging from three to six chambers are sometimes found (Kolb 1988, 495, 504). The emblematic Teotihuacan style is a highly distinctive double-chambered, thick-walled, oblong type with a variety of decorative schemes (Kolb 1988, 504). The average chamber diameter is c. 2 cm and the average chamber depth is c. 3.5 cm (Kolb 1988, 518, 521). In terms of manufacture, Kolb claims that Teotihuacan candeleros were molded "freehand" into their basic shape and the chambers were created using either fingers exclusively or "a wooden cylinder or solid 'dowel.'" In the latter case, the dowel was used to create a hole that was then finished with a finger (Kolb 1988, 496-7). In either case, Kolb claims that the chambers were made successively, not concurrently, and estimates very short manufacturing times for candeleros (1988, 496-7). He also asserts that candeleros require relatively less skill to execute than other ceramic types and "were mass produced on production lines, so that literally thousands could be made by one or two workers in less than a week" (Kolb 1988, 501). In terms of the function of Teotihuacan candeleros, Kolb believes that they "were small, personal, portable incense burners … associated with an individual's, or possibly a

residential group's, socioreligious activities" (1988, 457). He suggests that copal, copal coated in beeswax, other incense or other materials, even human blood or paper, may have been burned in candelero chambers (Kolb 1988, 606). He notes that candeleros from Copan and the Ulua Valley, both in Honduras, are different from those found at Teotihuacan, suggesting that they originated in a different tradition from Teotihuacan candeleros. Kolb goes on to argue that these candeleros may have had a different function from their Teotihuacan counterparts, referring to them as "'paint pots'" (Kolb 1988, 484). Given the similarity in their forms, Kolb's assertions about Teotihuacan candeleros are significant as a starting point for an analysis of Naco candeleros, especially in terms of their manufacture and function. Many of these claims may also apply to Naco candeleros. However, subsequent research challenges Kolb's inference that the candeleros found in Honduras are not incense burners.

In considering the meaning of Teotihuacan candeleros, Kolb connects their lack of association with religious spaces and an increase in the frequency of candeleros in the Late Classic (Metepec phase) and subsequent decrease after 650 CE to the decline of Teotihuacan's state religion and an increase in "personalized, decentralized ritual" (604-5). While Kolb associates candeleros with more personal ritual practices, most authors associate them with the penetration of the Teotihuacan state religion into households and areas outside of Teotihuacan. Most if not all mentions of candeleros in Braswell (2003) reference their presence as evidence of influence from and contact with Teotihuacan in some form, for example the existence "of a resident Teotihuacan colony" at a site (Bove and Busto 2003, 66). While candeleros are regularly mentioned in the literature on Teotihuacan, these are typically passing remarks taking up no more than a few paragraphs and generally involve little original research on candeleros outside their distribution and frequency at the site under discussion.

Rarely, candeleros are mentioned in the literature on Copan. In their volume reporting on the artifacts from the Harvard excavations at Copan, the site's excavators define six forms of Copan candeleros: cylindrical, bottle-shaped, conical, rectangular, multi-chambered, and miscellaneous (Willey et al. 1994, 214-9). With six definable forms, the candeleros from Copan may show the greatest variety in form and decoration of any candelero tradition. Willey et al. describe "most of the candeleros in our collection" as "rather crudely made and … fashioned hastily" (1994, 214). In describing the manufacture of candeleros, they cite Longyear, who claimed that the process consisted of "building up a rude lump of clay over an armature of wood or reed which, when removed or burnt out, left the central cavity with its opening or openings" (Willey et al. 1994, 214, citing Longyear 1952, 101-102). This description agrees with Kolb's assessment of the manufacture of candeleros, although it is not so specific. In terms of function, candeleros are described as "little pottery containers that may have had a ritual function" (Willey et al. 1994, 214). Willey et al. do not make any outright claims as to the function of Copan candeleros. While they note that "the majority of the candeleros examined did show interior burning or carbonization," they are similarly noncommittal in explaining this observation, writing that "whether this resulted from the burning of a stick or reed around which they had been formed [as Longyear claims], from the burning of copal or some other substance within them, or from still some other procedure must remain speculative" (Willey et al. 1994, 214). In their report, Willey et al. are much more cautious about their claims regarding candeleros than many authors. The experiments and analysis that would be necessary to make more specific claims have not been done on Copan candeleros.

While there is no evidence of the Teotihuacan, Copan, and Naco candelero traditions influencing each other, some Copan and Naco candeleros do bear striking resemblances. Some

plain, one-holed, cylindrical Copan candeleros resemble plain, one-holed Naco candeleros (for example, Willey et al. 1994, 317, fig. 153a-g). However the bottle-shaped, conical, and rectangular Copan candeleros look like nothing seen in the Naco or lower Cacaulapa valleys (see Willey et al. 1994, 318-20, figs. 156a-f, 157a-c, 158a-c, 159, 160). The Copan candeleros most similar to those found in the Naco and lower Cacaulapa valleys are the multi-chambered forms (see especially Willey at al. 1994, 320, fig. 161b). However, there are important differences. Most notably, Copan multi-chambered candeleros seem to be slightly smaller than Naco candeleros (Willey et al. 1994, 218-9; Griffith-Rosenberger, Neviska, and Katzeman 2015). More research comparing Copan and Naco candeleros is required before these brief observations can be offered as evidence for cross-tradition influence.

Research on Naco and Lower Cacaulapa Valley Candeleros

References to candeleros are occasionally found in the literature on the Naco and lower Cacaulapa valleys. Recently, Naco candeleros have seen renewed study at Kenyon College as a result of a series of research projects guided by Edward Schortman and Patricia Urban. During the Spring 2014 semester, Schortman and Urban taught a seminar that involved original student research on Naco candeleros, the results of which were presented in three posters at the Society for American Archaeology's 80th Annual Meeting in San Francisco (Ausec et al. 2015; Griffith-Rosenberger, Neviska, and Katzeman 2015; Schortman et al. 2015). This research was expanded upon in the summer of 2015 by the author, who carried out replicative experiments that sought to develop a greater understanding of the manufacture and function of Naco candeleros (Griffith-Rosenberger 2015). In the Spring 2016 semester, the author followed up these replicative studies with a literature review that sought to explore the greater context of candeleros in Mesoamerica and assess their possible uses and meanings.

The candeleros from the Naco and lower Cacaulapa valleys represent a distinct tradition of candeleros with a unique chronology, particular varieties, and uses and corresponding meanings that are seemingly specific to this region. However, the manufacturing process and function of Naco candeleros may have been similar to the Teotihuacan and Copan candelero traditions. Naco candeleros date to the Late and Terminal Classic periods, c. 600-1000 CE (Griffith-Rosenberger, Neviska, and Katzeman 2015). As noted, the Teotihuacan tradition dates from c. 250 to c. 750 CE and dates for the Copan tradition are unclear (Kolb 1988; Willey et al. 1994), thus the Naco tradition overlaps with, but dates later than, that at Teotihuacan. It is unclear how the Naco candelero tradition changed over time and this is a prime area for future research.

The form of Naco candeleros, especially the number of chambers present, varies greatly. Generally Naco candeleros are round, or less commonly triangular, with roughly flat tops and bottoms, unlike the oblong candeleros emblematic of the Teotihuacan tradition. Although rare, elaborate zoomorphic examples in the form of a fish and frog also exist (Griffith-Rosenberger, Neviska, and Katzeman 2015). Most Naco candeleros are 3-5.2cm in height and the chambers average 3.2cm deep and 1.7cm in diameter (Griffith-Rosenberger, Neviska, and Katzeman 2015; Griffith-Rosenberger 2015). The diameter of a candelero varies based on the number of chambers. Naco candeleros may have from one to twenty chambers, but three to seven chambers are most typical (Joyce et al. 1993, 269; unpublished data). Most are undecorated, but of those decorated the most common motifs are incised linear designs of various patterns (Griffith-Rosenberger, Neviska, and Katzeman 2015). The second most common decoration is a combination of modeling, applique, and incision that results in a zoomorphic candelero that depicts what appears to be a howler monkey with open mouth and eyes, called a screaming

monkey candelero (Griffith-Rosenberger, Neviska, and Katzeman 2015). The most emblematic Naco candeleros are round and have three or four chambers, sometimes with nubbin feet, often with "vent" holes that pierce a chamber's exterior wall, and are undecorated or have incised linear designs (Griffith-Rosenberger, Neviska, and Katzeman 2015). While the number of holes and decoration found on Naco candeleros can vary greatly, their general form remains round and squat, giving them much less variety in form than Copan candeleros.

Replicating Candeleros

The author performed replicative experiments in which imitations of candeleros were created based on ancient Naco examples in an effort to study the manufacturing process and function of these candeleros. The description of methods below is taken from Griffith-Rosenberger (2015).

Mica Red Low Fire clay from New Mexico Clay, a modern clay believed to be analogous to clay used in the ancient Naco and lower Cacaulapa valleys (Pat Urban, pers. comm. 2015), was used. Visual analysis and chemical tests of ceramic artifact pastes, clay test briquettes and disks, and a brief literature review were performed to determine what materials in what quantities should be used to temper this modern clay in order to more closely approximate the ancient clay used to manufacture candeleros (Ford and Glicken 1987, 485; Peuramaki-Brown 2012). Based on these inquiries, the modern clay was tempered with sand and volcanic ash, the only inclusions that were identified in the ancient candelero pastes. Wooden dowels of various sizes and PVC pipe were used to imitate tools employed to create candelero chambers. The replica candeleros were fired in a modern kiln at a low temperature (500℃), with a short soak time (1 hour), and in an oxidizing atmosphere to approximate ancient firing conditions (Del Giudice 2015; Rice 1987).

Replica candeleros were used in burning tests in which copal resin was heated using red-hot wood charcoal, pine fatwood, or duraflame® stix™ Multi-use Firestarters. Fatwood, in various sizes, and duraflame® stix™ Multi-use Firestarters were also tested in the replicas without copal resin, given their existing resinous content. Before and after burning tests, the replicas were described using a process analogous to the one used for cataloging candeleros by the archaeological projects in the Naco and lower Cacaulapa valleys. Three artifacts were also used in these experiments. Pictures, videos, and written notes were all used for recordkeeping. The results of these replicative experiments are discussed below.

One of the goals of the replicative experiments performed by the author was to determine the *chaîne opératoire*, or process of manufacture, of candeleros in the Naco and lower Cacaulapa valleys. Peuramaki-Brown argues that understanding the *chaîne opératoire* for artifacts can help to understand the social context and individual behavior and thought involved in fashioning an item (2012). A *chaîne opératoire* analysis seeks to identity the "materials, tools, actions, and specific knowledge" that constitute the manufacturing process (Peuramaki-Brown 2012, 167). The discussion of the manufacturing process of Naco candeleros that follows uses the concept of the *chaîne opératoire* to emphasize that manufacture is a social process carried out by individual human actions. It studies the four constituent pieces of this process: the materials used, the tools used, the actions performed, and the knowledge needed to complete this process.

Examining the materials used in the process of manufacturing candeleros requires an analysis of candelero pastes. Rice defines paste as "a clay or mixture of clay and added materials," it is the body of a ceramic artifact (1987, 479). The "added materials" that Rice mentions are inclusions, "particulate matter, usually mineral in nature, present in a clay or fabric, either naturally or added by the potter" (1987, 477). When a material is added to clay as part of the

ceramic manufacturing process, it is called temper and its purpose is often "to improve [a clay's] working, drying, or firing properties" (Rice 1987, 483). The pastes of Naco candeleros are generally coarse (Griffith-Rosenberger, Neviska, and Katzeman 2015), suggesting that they either have high quantities of natural inclusions or temper that results in this property. Replicative experiments suggest that rather moist and plastic clay is required for candelero manufacture (Griffith-Rosenberger 2015). Petrographic studies from the lower Cacaulapa Valley, which did not include candeleros, suggest that volcanic ash (15-39%), schist (<1-15%), quartz (5-15%), and muscovite mica (3-15%) are notable inclusions and tempers in local ceramics (Peuramaki-Brown 2012). The percentages here represent the portion of a paste taken up by a given temper. Schist, as well as muscovite mica, contributes mica to ceramic pastes and quartz inclusions may be a result of sand temper or the use of sandy clays. In the Central Maya Lowlands, one study suggests that, of ceramics tempered with volcanic ash, volcanic ash content averages 20% with "higher amounts" being "common" (Ford and Glicken 1987, 485). Macrovisual analysis and replicative studies of Naco candeleros suggest that, while the pastes vary in content, mica, sand, and volcanic ash are the primary inclusions, in amounts perhaps as high as 30% (Griffith-Rosenberger 2015). However, without performing petrographic analyses, any claims to quantifying the amount of an inclusion in a paste are largely unreliable. The sand and volcanic ash inclusions tend to be very coarse (Griffith-Rosenberger 2015), suggesting that such temper would need only minimal processing and perhaps no sifting at all. Naco candeleros are typically unslipped and unpainted (unpublished data). It is unclear whether the inclusions seen in Naco candelero pastes are natural inclusions or temper. Assuming they are temper, then the materials required for their manufacture are moist and plastic clay, mica, sand, and volcanic ash.

Few tools are necessary for the manufacture of Naco candeleros. Replicative studies, as well as the literature previously mentioned, suggests that some kind of round, solid or hollow instrument is used to create the chambers, perhaps a thick stick or reed (Griffith-Rosenberger 2015; Kolb 1988; Willey et al. 1994, citing Longyear 1952). In the replicative experiments, this tool was approximated using wooden dowels and PVC pipe (Griffith-Rosenberger 2015). Another tool, such as a thin stick, is necessary to create the vents and decoration seen on candeleros. Modern, mass-produced wooden pottery tools with sharp points and bent-out paperclips were used for these purposes in the replicative experiments. If candeleros were scraped and smoothed during manufacture, then a "smooth-edged" or "serrated tool" and "a soft, yielding tool", respectively, would be needed (Rice 1987, 137-8). In the replicative experiments, a modern, mass-produced wooden pottery tool with a long, sharp, smooth edge was used for scraping and the potter's fingers and hand was used for smoothing. Other tools may have been necessary and utilized in the ancient Naco and lower Cacaulapa valleys, but no other tools were necessary in the replicative experiments. Fingers, hands, and the potting surface were used extensively for shaping and finishing the candeleros.

The literature has always treated the steps in the process of manufacturing candeleros as rather straightforward and the replicative experiments performed by the author do not contradict this. However, they do suggest that the process is moderately more complex and difficult than once believed. First, the materials, clay and tempers, must be gathered and prepared. For tempers, this may include grinding the materials with a mano-and-metate to create smaller particles, as was done with a mortar-and-pestle in the replicative experiments, or sifting the materials to select for smaller or larger particles. For clay, this may include aging, adding tempers and water, and kneading.

Once the clay is prepared, the process begins as attested in the literature, by fashioning a lump of clay into the basic shape of a candelero (Griffith-Rosenberger, Neviska, and Katzeman 2015; Kolb 1988; Willey et al. 1994, citing Longyear 1952). However, difficulties begin when creating the chambers. Griffith-Rosenberger, Neviska, and Katzeman argue that candelero chambers were made "by plunging a stick or finger" into the shaped lump of clay (2015), implying that the chambers were made consecutively, not simultaneously. This agrees with Kolb, cited above (1988, 496-7). The replicative experiments suggest that the chambers must be created simultaneously in order to maintain the shape and integrity of the candelero, especially its interior walls, at least in the case of Naco candeleros. The exceptions to this are one-holed, and possibly two- or three-holed candeleros, which may be small or thick-walled enough for fingers to be used to consecutively create the chambers. The simultaneous creation of the chambers was suggested by Longyear when he claimed that "an armature of wood or reed" was used (1952, 101-2, cited in Willey et al. 1994, 214). A standardized "armature" of some kind seems unlikely due to the nonstandard measurements of candeleros, especially Copan candeleros, many of which are one-holed (Willey et al. 1994). It also seems improbable that these armatures were burned out of the chambers, at least in the case of Naco candeleros, as Longyear suggests (1952, 101-2, cited in Willey et al. 1994, 214). The burning patterns seen on Naco candeleros appear at the bottoms of the chambers and rise up to the middle of the interior walls as well as above the vents on the exterior walls (Urban and Smith 1987, 273). These patterns seem inconsistent with those that might be created by burning out the tools used to create the chambers, but this has not been tested. While Longyear's "armature" hypothesis may be incorrect, he was thinking in the right direction. Candelero chambers were probably made by placing individual solid or hollow tools into the shaped clay lump in quick succession, the potter being careful to

maintain the integrity of the interior and exterior walls of the chambers. Hollow tools were probably used, as they make it easier to maintain the shape of the candelero and integrity of the walls, create thinner walls, and the clay that formerly filled the chamber space is removed with the tool.

Once the tools are placed in the clay to create the chambers, the candeleros were probably partially dried, perhaps to a leather-hard state. Ethnographic data show that many actions are performed once the ceramic is leather-hard, such as scraping to thin walls and remove imperfections and smoothing to finish the walls (Rice 1987, 137-8). Candeleros may have been scraped and smoothed while in a leather-hard state prior to removing the chamber-making tools. If the candelero is partially dried before the chamber-making tools are removed, the harder consistency yields less when the tools are removed and the integrity of the walls and the shape are more easily maintained. Scraping and smoothing with the chamber-making tools removed is more likely to damage the walls or alter the shape of the candelero. Ceramics are often decorated only after they are partially dried (Rice 1987, 152). Candeleros may have been decorated before or after the chamber-making tools were removed. If done before, there is less chance of damage to the walls and shape of the candelero. After the chamber-making tools are removed, the interiors of the chambers were finished and smoothed with a finger. This is suggested by the fingernail marks sometimes observed in the chambers (Griffith-Rosenberger, Neviska, and Katzeman 2015). Vents were created after the chamber-making tools were removed, otherwise they would block the tool penetrating the exterior wall to create the vents. Kolb describes similar treatment while in a leather-hard state (1988, 497, 501). The candeleros would then be allowed to dry to a bone-dry state prior to firing.

Ancient candeleros were probably fired at a low temperature in an oxidizing atmosphere with a short soak time. While there is evidence for the presence of kilns at two sites in the Naco Valley, La Sierra and Las Canoas, the ceramics produced in the valley seem to have been fired at rather low temperatures (Del Giudice 2015). This may suggest that most ceramics in the valley were not fired in a kiln, as non-kiln firings are usually low-temperature firings (Rice 1987, 153). Findings from previous replicative experiments studying firing temperature performed on ceramics other than candeleros from the Naco Valley suggest that a firing temperature of c. 500℃ would be appropriate (Del Giudice 2015). Assuming that candeleros were generally not fired in kilns, the firings were also probably short, as the fuel used quickly burns itself out, and in an oxidizing atmosphere, as the ceramics are usually readily exposed to the elements (Rice 1987, 153, 155-6). After firing, the candeleros may then have been removed from the fuel source relatively quickly and allowed to cool (Rice 1987, 157-8). This is the end of the manufacturing process. The replicative experiments performed by the author attempted to reproduce these conditions using a Home Artist Digital Kiln with a Sentry Xpress Digital Temperature Controller by rapidly firing the replica candeleros to 500℃ as quickly as possible and maintaining a soak time of only one hour. The kiln was vented throughout firing and cooling to expose the ceramics to oxygen.

Manufacturing Naco candeleros requires potting skill and familiarity with candelero design. It is not as simple and easy as sticking ones fingers into a ball of clay. The most difficult part of creating a Naco candelero is ensuring the integrity of the interior walls between the chambers, which in the replica candeleros often cracked or became too thin, resulting in breakage. The author was not able to successfully replicate the thin exterior walls and nubbin feet seen on Naco candeleros in his experiments. These specific features, as well as the overall

process, require specialized knowledge to create successfully. The *chaîne opératoire* of candeleros thus appears to be a rather straightforward, but complex, process. The materials, tools, steps, and specialized knowledge outlined above are, of course, speculative, as they are inferred primarily from replicative studies and ethnographic analogies. However, these replicative experiments were successful in creating some replica candeleros that at least seem to function as trustworthy analogs to their ancient counterparts. Further efforts to expand upon this research are, as always, needed.

Candelero Functions, Uses, and Meanings

Other than studying the *chaîne opératoire* of candeleros, another goal of the author's replicative experiments was to test hypotheses about their functions. *Function* here is defined as what humans do to candeleros, while *use* is understood as what humans do with candeleros. Use is the association of function with meaning. Neither function nor use determines meaning, but both function and use limit the possible meanings of an object. Function, use, and meaning are intimately interrelated and cannot be easily separated, but attempting to distinguish them and examine the relationships among them can reveal much about an object and the people who produced and used it. The function of candeleros serves as a physical baseline upon which to develop an understanding of their uses in the ancient Naco and lower Cacaulapa valleys. Their uses then provide insights into the meanings with which they may have been imbued.

Naco candeleros functioned as receptacles in which organic material was heated by smoldering coals. This material was likely incense, so this description may be glossed by describing candeleros as small incense burners. Red-hot coals were placed in the chambers and left to smolder alongside incense, causing the incense to smoke and aromatize. Burning patterns consistent with this function are commonly observed in excavated specimens and have been

replicated experimentally. The incense used in these candeleros was probably copal resin, a ubiquitous Mesoamerican incense. Candeleros belonging to the Teotihuacan and Copan traditions may also have functioned in this way, but their uses and meanings were almost definitely distinct.

The incense burner hypothesis is the only generally accepted hypothesis regarding the function of candeleros. In discussing Teotihuacan candeleros, Kolb states that these "were small, personal, portable incense burners," perhaps using copal (Kolb 1988, 457). This hypothesis has been advanced for Naco candeleros by Urban, among others, and also seems to be accepted as a possibility for Copan candeleros by that site's excavators (Urban 1986, 191; Wiley et al. 1994, 214). Thus, the candeleros of all traditions discussed here are supposedly incense burners. This incense burner hypothesis has been accepted on the basis of burning patterns commonly observed in candelero chambers. These burning patterns consist of discoloration thought to be from heat and sooting. In Naco candeleros, this discoloration occurs at the bottom and on the mid- to lower walls of candelero chambers as well as around their vents, which would seem to suggest that something was smoldering and creating smoke in the bottom of the chambers (Urban and Smith 1987, 273). The replicative experiments carried out by the author tested this hypothesis.

Replicative experiments in which red-hot wood charcoal was placed in the chambers of a replica candelero with copal resin created burning patterns that closely match those observed in ancient Naco candeleros. These burning patterns consisted of discolorations from heat, sooting, and charring that could be observed on the bottoms and mid- to lower walls of the chambers. While these experiments seem to confirm the incense burner hypothesis, it is important to note that the burning tests themselves were largely inconclusive. For some unknown reason, the fuels

tested were not effective and the coals consistently burned out and lost their heat after approximately one minute in the chambers. It is possible that the coals or copal resin must be treated or prepared in some way that is currently unknown. For example, Kolb suggests that the copal resin used in the chambers of Teotihuacan candeleros may have been coated in beeswax (1988, 606). Further replicative experiments involving burning tests are necessary. However, the replication of the burning patterns does confirm that candeleros may have functioned as incense burners by heating copal resin with smoldering heat from red-hot coals.

The incense burner hypothesis provides a kind of functional base upon which an understanding of the uses and accompanying meanings attributed to candeleros, specifically in the ancient Naco and lower Cacaulapa valleys, can be built. These candeleros possibly saw dual use as practical fumigators and ritual incense burners in storage spaces and households. These uses are suggested by the form, decoration, and distribution of candeleros in the Naco and lower Cacaulapa valleys, as well as the known uses of copal. In terms of meaning, no easy distinction can be drawn between seemingly practical and ritual candelero use. Instead, these may have strongly overlapped.

There are two hypotheses about the use of Naco candeleros, one posits that they were involved in some kind of ritual practice and the other that they were used as fumigators to suppress infestations of pests in storage spaces. These are not mutually exclusive and they may both be correct. Kolb posits that Teotihuacan candeleros are “associated with an individual’s, or possibly a residential group’s, socioreligious activities” and emphasizes that these candeleros were used in personal ritual practice, proposing that they may have been designed to be hand-held (Kolb 1988, 457). Subsequent authors have connected Teotihuacan candeleros with the penetration of the Teotihuacan state religion into households and areas outside of Teotihuacan

(authors in Braswell 2003). Regardless of the specific context, it is generally accepted that candeleros were used in ritual practices. The ritual practice hypothesis has been applied to Naco candeleros by Urban and others (Urban & Smith 1987, 274). It is also accepted for Copan candeleros by the excavators of that site (Wiley et al. 1994, 214). This hypothesis is supported by candeleros' apparent function as incense burners and the common connection between incense and ritual (Ratsch 2005, 754-5). That candeleros may have ritual significance does not exclude the possibility that they also had some utilitarian functions. In fact, it is likely that they did.

Urban, Schortman, and some of their students have recently advanced another hypothesis about the use of candeleros. They propose that at least some were used as fumigators in storage areas. Urban developed this hypothesis after considering the find contexts and distribution of candeleros in the Naco and lower Cacaulapa valleys, as well as the prevalence of undecorated examples. Urban notes especially that "unusually high frequencies of candeleros" have been found in storage areas (pers. comm. 2015). This hypothesis is also supported by the form of Naco candeleros and the documented uses of copal. One of the most notable things about Naco candeleros is how terribly stable they are, given their flat bases or three nubbin feet and low centers of gravity. If something contains red-hot coals, then it should be designed to not fall over easily, as Naco candeleros are. This is especially true if that thing is left in a storage space, where fires would be particularly unfortunate. This stability thus would enhance the utility of candeleros left smoking unattended in storage spaces.

Distribution analyses of candeleros provide strong evidence for their use in storage areas. These have demonstrated that candeleros are concentrated in storage areas and in residences that also contain storage areas. These storage areas presumably held perishable goods, like maize, as well as other items that might be vulnerable to pests, such as textiles, in addition to ceramics

(Edward Schortman, pers. comm. 2016). Analyses of the North Group of La Sierra, the Late Classic capital of the Naco Valley, support the association between candeleros and storage spaces, where the highest density of candeleros in the group is found in a structure that seems to have been exclusively used for storage (Schortman et al. 2015). At Site 128 in the Naco Valley, the highest density of candeleros and the second highest number of candeleros are found at a structure exclusively used for storage and in which goods may have been held in common by a corporate group (Urban and Schortman 2004, 261-2). While this communal storage structure has the highest density of candeleros at the site, this was still only 10 candeleros and the highest number, found in a structure associated with storage and cloth decoration, was only 12 candeleros (Urban and Schortman 2004, 256, 261, 263). Artifact distributions from the North Group of La Sierra (Ops 16 and 53) and Sites 386, 418, and 426 in the Naco Valley also suggest that candeleros may be associated with textile production. At these sites, candeleros and ceramic stamps, thought to be used for decorating textiles, were found in the same structures (unpublished data, Ops. 16, 53, 128, 386), as well as donut stones, which may be loom weights (unpublished data, Ops. 16, 53, 426; Edward Schortman, pers. comm. 2016), or just candeleros and donut stones were found together (unpublished data, Ops. 418). In one structure, a high density of both candeleros and stamps was found along with a bone needle and donut stone (unpublished data, Op. 53, Str. 41B). Together, this evidence suggests that candeleros may be associated with structures where textiles were manufactured and probably also stored. Additionally, evidence from Site 471 in the Naco Valley suggests an association between candeleros and structures where ceramic manufacture is taking place, perhaps candeleros were being manufactured at this structure (unpublished data). Despite the high densities of candeleros at some of these structures, the total counts remain relatively low with some exceptions. These

low counts suggest that candeleros were not a good being produced and then stored in these structures to be retrieved for use elsewhere, but that they were used within the structures. All of these observations suggests that Urban is correct, candeleros were used in storage spaces.

Further evidence for the possible uses of candeleros, heavily dependent on their presumed function, comes from the documented uses of copal. In Mesoamerica generally, copal is often treated as "food for the gods" (Herring 2005, 202; Ratsch 2005, 754). Various sources suggest that it is commonly used to communicate with the realm of the supernatural, in magic for various purposes, for ritual cleansing, as an entheogen, to treat ailments, and to repel insects (Case et al. 2003, 190-5, 198; Morehart, Lentz, and Prufer 2005, 265; Morgan 2009, 23-4; Newsome 2003, 41; Ratsch 2005, 91, 199, 550, 671, 756, 761; Stross 1997, 178, 181-4). Most significantly, Stross strongly associates copal with maize, arguing that, in Mesoamerica, maize and copal are analogous staple foods, each appropriate to different beings (1997, 178). Further, he provides evidence that modeled copal resin resembling corn cobs is used as a charm in granaries to protect maize, that copal smoke is used on maize seed before sowing, and that copal is used to protect homes (Stross 1997, 179-81). It seems telling that copal is both commonly associated with protective magic and fumigation against insects and that candeleros are especially prevalent in storage spaces in the Naco Valley. Copal thus could be used in candeleros to feed and communicate with deities, to protect residences, storage areas, and the goods contained within them, and even to fumigate spaces against insects, either intentionally or incidentally. Thus, the dual ritual and utilitarian uses of copal further suggests the dual ritual and utilitarian uses of candeleros.

The various decorative modes found on Naco candeleros provide some clues as to their uses and meanings. The two most notable decorative modes are incision of various types and a

combination of modeling, applique, and incision that creates an effigy of a howler monkey, so-called screaming monkey candeleros. Analysis of a collection of 300 candelero fragments from around La Sierra showed that a little less than half of the assemblage, 43%, was decorated. Out of these decorated fragments, 78% were incised in various patterns, some of which are seen on other Naco ceramics (Griffith-Rosenberger, Neviska, and Katzeman 2015; Ausec et al. 2015). In this same collection, 16% are screaming monkey candeleros, making this the most common decorative mode after all incision (Griffith-Rosenberger, Neviska, and Katzeman 2015). Interestingly, while other species of monkeys are found on other Naco ceramics, depictions of howler monkeys are unique to candeleros (Ausec et al. 2015). This suggests that it is significant that howler monkeys in particular are depicted on candeleros. Distribution analysis of decorative modes in the North Group of La Sierra also suggests that certain decorative modes, including screaming monkeys, are associated with certain households, and others are widely shared (Schortman et al. 2015). This suggests that candeleros adorned with certain decorative modes, and screaming monkeys in particular, may have been symbols of social identity. The decorative mode seen on a candelero in a storage space could have marked to whom that storage space and the goods within it belonged.

Candeleros, utilizing copal resin as incense, could easily be involved in both ritual practices and fumigation. Considering the ethnographic data on the uses of copal and the prevalence of candeleros in storage areas in the Naco Valley, it seems likely that the smoke and scent of copal resin heated in candeleros could have protected items vulnerable to damage from pests, such as maize or textiles, against insects. Otherwise or additionally, candeleros might serve, ritually, as instruments of protective magic. If certain decorative modes on candeleros were markers of social identity, then perhaps the use of candeleros with those motifs in storage

spaces allowed people with those social identities to stake a claim to that space and the goods held there. The uses of Naco candeleros outlined here are of course speculative, but they follow from the available evidence, especially when the significance and meanings of copal in Mesoamerica is considered.

It is important to remember that assuming that use is either purely utilitarian or purely ritual is a mistake. All uses are endowed with meaning and a small fumigator may have just as much ritual significance and cultural associations as a large incense burner used in public rites. Morehart, Lentz, and Prufer, writing about the ritual use of pine in the ancient Maya lowlands, criticize exclusively utilitarian or ritual characterizations of materials in favor of considering the dual utilitarian and ritual functions of many materials (2005, 256). To a certain extent, this has already been the approach towards copal in the literature, given the extensive references to ritual uses as well as use as an insecticide and entheogen. It is easy to see that plants and their products, such as pine and copal resin, can have both ritual and utilitarian uses. However, this should also be kept in mind when studying artifacts like candeleros, whose uncertain uses often cause archaeologists to assume that they are ritual objects.

Starting from these presumed uses of candeleros, an understanding of their meanings can be built. The possible meanings of candeleros in the ancient Naco and lower Cacaulapa valleys are well illustrated by an admittedly highly speculative analysis of screaming monkey candeleros that draws together the disparate lines of evidence and potential uses for Naco candeleros presented above. Morehart, Lentz, and Prufer remark that in the ancient Maya lowlands “smoke represented both the essence of the offering and the ‘speech’ of the deities, which explains why many prehistoric, anthropomorphic censers have a mouth to allow the smoke from the incense to flow out” (2005, 268-9). This interpretation can be fruitfully applied to screaming monkey

candeleros, where smoke streams out of the eyes and mouth of a stylized howler monkey. This may not represent a speaking deity, but it does represent a screaming howler monkey. Screaming howler monkeys are two things: loud and disruptive. This is their role on candeleros in storage areas in the Naco and lower Cacaulapa valleys. These zoomorphic candeleros offer copal smoke and scream in order to drive away anything that would negatively impact the goods with which they are placed. In this way, they protect against both malignant supernatural forces and insects. Thus, they are fumigators, both in a protective ritual and insect-repellent sense. In this way, they may also serve as ritual incense burners and could have an equally protective use in household ritual.

This admittedly imaginative conclusion about the use and meaning of screaming monkey candeleros can be applied to Naco candeleros generally. Regardless of their decoration, candeleros in the Naco and lower Cacaulapa valleys were used predominately in storage areas, but probably also in residential spaces. It is possible that undecorated candeleros were considered more utilitarian, while decorated ones, like screaming monkeys, were more significant for their ritual meaning. The function of candeleros is to burn something organic, probably incense. Their use in either residential or storage spaces, whether as ritual incense burners or more utilitarian fumigators, was protective in nature, whether from worldly or otherworldly beings. These uses and meanings probably strongly overlapped.

Summary

This paper has reviewed most of what is currently known about the candelero tradition associated with the Naco and lower Cacaulapa valleys of northwestern Honduras. It has also presented new research, especially on the *chaîne opératoire*, function, uses, and meanings of Naco candeleros. The research on the *chaîne opératoire* and function of these candeleros may

well be applicable to Teotihuacan and Copan candeleros as well. That the *chaîne opératoire* is similar across these traditions seems likely given the similarity in form observed among all candeleros. However, research on the specific burning patterns seen in candeleros belonging to these other traditions is necessary to assess whether candeleros have the same functions across traditions. The most speculative analyses here regard the uses and meanings of Naco candeleros and these are also not applicable to other candelero traditions, given the usually local nature of use and meaning. Both the ritual practice and fumigator hypotheses are reasonable for explaining the uses of Naco candeleros. As potential markers of social identity and perhaps as ritual as well as utilitarian fumigators in storage spaces, candeleros, especially when decorated, were probably ritually-charged items that also had a practical use. The real significance of candeleros in the ancient Naco and lower Cacaulapa valleys lies somewhere between the antinomies of ritual practice and utilitarian use.

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